Software Rights Archive, LLC v. Google Inc. et al Doc. 202

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

THE APPLE IPOD ITUNES ANTI-TRUST LITIGATION This Document Relates To: ALL ACTIONS	Case No. C 07-6507 JW

Affidavit of Gary L. French, Ph.D.

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STATE OF VIRGINIA)
) SS.:
COUNTY OF ARLINGTON)

Gary L. French, Ph.D., being duly sworn, deposes and says,

I. INTRODUCTION

A. Qualifications

1. I am a senior vice president and consulting economist with Nathan Associates Inc., an economic and financial consulting firm that provides research and analysis to public and private clients in the United States and abroad.

2. Prior to joining Nathan Associates in 1979, I was a member of the faculties at three universities over an eight-year period. During this period, I taught undergraduate and graduate courses in economics, finance, and statistics. I earned three degrees

from the University of Houston; a Bachelor of Business Administration in 1966, a Master of Arts in economics in 1971, and a Doctor of Philosophy in economics in 1973.

3. Much of my work at Nathan Associates involves the analysis of economic, financial, marketing, and other business issues that arise in litigation. My clients have included both plaintiffs and defendants in a variety of litigation matters involving antitrust, contract, fraud and misrepresentation, tax, and various business and personal tort claims. During my career, I have been involved in well over 100 cases in federal and state courts. I have often been called upon to testify, as an expert economist, to my analysis and conclusions concerning liability issues and damages.

4. In addition to work related to court cases, I have undertaken analyses pertaining to matters or issues before the Federal Communications Commission, the Federal Maritime Commission, the International Trade Commission, and the U.S. Departments of Energy, Transportation, and the Treasury. My remaining assignments have been undertaken for corporations for private purposes. My assignments have involved a variety of economic and financial analyses including the estimation of damages, marketing research, and the valuation of businesses and business assets.

5. My professional experience includes the analysis of economic and financial issues related to antitrust and other complex litigation, including matters concerning the definition of relevant markets, the examination of economic impact, and the estimation of damages. In a number of instances, such analyses have concerned issues of economic impact upon multiple plaintiffs and plaintiff classes, as well as the analytical methods that can be applied to assess damages on a class-wide basis. I have provided economic analyses and testimony regarding impact and damages in several class-action matters, including cases involving diamonds, steel reinforcing bars, life insurance, soft drink bottling, potash, new automobiles, disposable contact lenses, airlines, real estate brokerage services, automobile insurance, and pharmaceutical products.

6. Additional information about my professional experience as an economist, including publications and affiliations, are included in my resume in **Appendix A**. Also included in Appendix A is a list of the matters in which I have provided deposition or court testimony over the last four years.

B. Retention

7. Counsel for Plaintiff has asked me to determine whether there is common proof to show whether Apple Inc.'s ("Apple" or "Defendant") alleged violations impacted all or virtually all members of two proposed classes. The proposed Injunctive Relief Class is defined as "All persons or entities in the United States (excluding federal, state and local governmental entities, Apple, its directors, officers and members of

their families) that from December 31, 2003 to the present ("Class Period") purchased an Apple iPod indirectly from Apple for their own use and not for resale."

8. The proposed Indirect Purchaser Damages Class is defined as "all persons or entities in the United States (excluding federal, state and local governmental entities, Apple, its directors, officers and members of their families) that from December 31, 2003 to the present purchased an Apple iPod indirectly from Apple for their own use and not for resale."

9. Counsel for Plaintiff has also asked me to determine whether the economic analysis of liability issues and economic evidence of the tying effect in this matter would be common to all members of the classes, whether economic injury to class members can be ascertained using common evidence, and whether there are available sufficient data and feasible methodologies to estimate aggregate, class-wide damages arising from Defendant's alleged wrongdoing to the proposed Plaintiff classes.

10. Nathan Associates is being compensated at a rate of $450 an hour for my efforts. Nathan Associates is also being compensated for the time of other economists assisting in this study who are working under my direction. Neither Nathan Associates nor I have an economic interest in the outcome of this case.

C. Assumptions and Materials Considered

11. Plaintiff alleges that, from at least April 2003, when Apple began to sell Fairplay DRM-restricted music content, Defendant tied sales of the Apple iPod to audio downloads sold through Apple's iTunes Music Store ("iTMS") and monopolized and attempted to monopolize sales of portable digital audio players and online audio files.

12. Plaintiff alleges that, Apple extended its monopoly power in the market for **downloadable digital music and videos** into the market for **portable digital players** using a tying arrangement and monopolized and attempted to monopolize the market for portable digital players. For the purposes of determining whether the questions of impact and damages in this matter can be addressed predominantly using common proof, I assume that the allegations of the Complaint[1] are true and that Apple engaged in misconduct in violation of Sections 1 and 2 of the Sherman Act. I have not assumed that the alleged misconduct impacted members of the proposed Classes. Instead, I have investigated whether there is common evidence that could establish whether members of the Classes were impacted, whether there was an aggregate effect of the tie on market demand and prices for the iPod, and whether feasible methods exist to estimate damages, if any, incurred by the proposed Indirect Purchaser Damages Class, assuming the violations have occurred as alleged.

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[1] United States District Court for the Northern District of California, *Stacie Somers v. Apple Inc.*, Case No. 07-6507 (JW), dated December 31, 2007, Class Action Complaint for Violations of Sherman Antitrust Act, Cartwright Act, California Unfair Competition Law, Consumer Legal Remedies Act and Monopolization of Business Practices (hereinafter, "Complaint"), ¶27(a).

13. In preparing this affidavit, I have examined the economic characteristics of commerce in downloadable digital music and video and in portable digital players based on the review, both by myself and other members of Nathan Associates working under my direction, of the following information:

- Specific documents produced or filed thus far in this litigation, including the Complaint;
- Apple's business records produced pursuant to discovery in this matter, including, *inter alia*, answers to interrogatories and attachments thereto,[2] answers to Plaintiff's requests for production of documents,[3] Apple's price lists for its authorized resellers, wholesalers and minimum advertised prices, and examples of Apple's agreements with its resellers, wholesalers and distributors;
- Apple's publicly available documents, including its annual reports (10-Ks) and quarterly reports (10-Qs) filed with the Securities and Exchange Commission ("SEC");
- Filings in the consolidated direct purchaser action, *Apple iPod iTunes Antitrust Litigation*,[4] including pleadings, an expert report filed on behalf of direct purchasers plaintiffs, and the Court's opinion;
- Communications with third-party data sources; and
- Industry trade press and other publicly available information regarding downloadable audio files and portable digital players.

A list of the materials reviewed is contained in **Appendix B** of this affidavit.

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[2] United States District Court for the Northern District of California, *Stacie Somers v. Apple Inc.*, Case No. 07-6507 (JW), August 28, 2008, Defendant Apple Inc.'s Responses to Plaintiff's First Set of Interrogatories (hereinafter, "Apple Interrog. Resp.").

[3] United States District Court for the Northern District of California, *Stacie Somers v. Apple Inc.*, Case No. 07-6507 (JW), August 28, 2008, Defendant Apple Inc.'s Responses to Plaintiff's First Set of Requests for Production of Documents (hereinafter, "Apple Production Resp.").

[4] United States District Court for the Northern District of California, *Apple iPod iTunes Antitrust Litigation*, Case No. C 05-00037 (JW), consolidated on March 21, 2007.

D. Background

14. On December 31, 2007, plaintiff Stacie Somers (herein referred to as "Plaintiff") filed suit against Apple on behalf of herself and other indirect purchasers of the Apple iPod.

15. Direct purchasers had previously filed an action against Apple for similar conduct, and direct purchaser plaintiffs submitted the expert testimony of Professor Roger Noll ("Noll Declaration") related to class certification issues. On December 22, 2008, the Court issued an order certifying the class of direct purchasers with respect to direct purchaser plaintiffs' monopolization and attempted monopolization allegations.[5]

16. On January 6, 2009, Apple announced its intention to remove its proprietary digital rights management ("DRM") restrictions from the music sold through iTMS by late March 2009.[6] Under this new policy, customers who had previously purchased music from iTMS would be able to convert each DRM-protected download to the DRM-free version for a fee of $0.30 each or 30 percent of the album price.

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[5] United States District Court for the Northern District of California, *Apple iPod iTunes Antitrust Litigation*, Case No. C 05-00037 (JW), filed December 22, 2008, Order Granting Plaintiffs' Motion for Class Certification, (hereinafter, "Direct Purchaser Class Order").

[6] Smith, Ethan and Yukari Iwatani Kane. "Apple Changes Tune on Music Pricing," *Wall Street Journal*, January 7, 2009, p. B1. *See also* Coe, Erin. "Apple Drops ITunes Copyright Restrictions," *Law360*, January 7, 2009 and Apple Press Release, "Changes Coming to the iTunes Store," January 6, 2009.

II. Summary of Conclusions

17. Based on my economic analysis of the information reviewed, I have concluded that there is common proof to determine whether Apple's alleged misconduct would have impacted all or virtually all indirect purchasers of Apple iPods in the United States during the Class Period.

18. Economic analysis of certain elements of Plaintiff's claims, including analysis to define product and geographic markets, analysis of Defendant's market power, the existence of the tie, and the fact of injury arising from Apple's alleged violations during the proposed Class Period, would all be the same for each and every member of the proposed Classes.

19. Furthermore, there are feasible and common methods to estimate class-wide overcharges and damages to the proposed Indirect Purchaser Damages Class of iPod purchasers.

III. Industry Background

20. Digital music has been available to consumers via compact disc ("CD") and later through online sharing and sales of digital audio files. Software and hardware to play these digital audio files have emerged: software includes "jukebox" digital media applications such as winamp, Windows Media Player and iTunes; hardware includes CD players, sound cards for personal computers and laptop computers, and portable MP3 players. Portable MP3 players are a subset of portable digital players.

A. Portable Digital Players

21. "Portable digital players" are handheld electronic devices that store and play back digital audio and video files. They are battery operated and embody varying features including memory size, playlist organization, physical size, and battery life. The audio and video files are stored on either hard drive or flash memory.

22. Apple first launched the iPod in October 2001.[7] [redacted] Since the iPod's introduction, Apple has produced and marketed several models of portable digital players. These are the iPod "classic," iPod touch, iPod nano, iPod shuffle, iPod mini, and iPod photo. These product models are sold at different price points and possess a variety of performance features (see Exhibit 2). Several models also have multiple generations associated with ongoing product development and innovation.

23. Other manufacturers or brands of portable digital players sold in the United States include SanDisk Fuze and Sansa, Creative Labs' Zen, Samsung, Sony, and Microsoft Zune. According to the NPD Group, from the fourth quarter of 2002 to the first half of 2008, Apple's share of unit sales of portable digital players in the United States increased from approximately eleven percent to 70 percent

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[7] Apple 10-K, 2002, p. 4.

(Exhibit 3).[8] The manufacturers that have ceased to produce and sell portable digital players include Dell and Rio.[9] Exhibit 4 traces noteworthy events in Portable Digital Players.

24. Portable digital players are sold to consumers both directly from manufacturers and through resellers and wholesalers, specialty retailers, department store retailers, and online retailers [redacted]

25. [redacted]

[8] Gibson, Brad. "TMO Reports – Apple iPod Number One In Music Player Market," *The Mac Observer*, March 13, 2003 and Bishop, Todd. "Microsoft says Zune here to stay," *Seattle Post-Intelligencer*, September 10, 2008.

[9] Dyszel, Bill. "Rio Exits the MP3 Player Business," *PCMag*, August 26, 2005 and Del Conte, Natali T. "Dell Pulls Out of MP3 Player Market," *PCMag*, August 23, 2006.

[10] [redacted]

[redacted][13] Resellers and retailers apparently do not add further value to iPods beyond the provision of distribution outlets and service by salespersons to potential consumers.

26. In 2004, Apple entered into an agreement with Hewlett-Packard ("HP") to sell HP-branded iPods. Under this arrangement, HP sold HP-branded Apple iPods to consumers from September 15, 2004 until approximately September 2005.[14] [redacted]

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11 [redacted]

12 [redacted]

13 [redacted]

14 Spooner, John G. "HP to tempt shoppers with digital lifestyle," *CNET News*, August 27, 2004 (http://news.cnet.com/HP-to-tempt-shoppers-with-digital-lifestyle/2100-1041_3-5327037.html) and Fried, Ina. "HP to stop selling Apple's iPod," *CNET News*, July 29, 2005 (http://news.cnet.com/HP-to-stop-selling-Apples-iPod/2100-1047_3-5810643.html).

15 [redacted]

27. [redacted] The estimates of the sales by state in Exhibit 9 will not be needed if Apple provides sales by state in discovery.

28. [redacted]

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16 [redacted]

17 [redacted]

18 [redacted]

[redacted]

29. [redacted]

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19 [redacted]

20 [redacted]

2 [redacted]

22 [redacted]

[redacted]

B. Downloadable Digital Audio Files

30. "Downloadable digital audio files" and "downloadable digital video files" are audio and video files distributed through the Internet. Analog audio files are converted to digital format (and back to analog) for storage and playback using codecs.[23] Common audio compressor formats of these digital audio files are MPEG-1 Audio Layer 3 ("MP3"), Advanced Audio Coding ("AAC") and Windows Media Audio ("WMA"). Apple's iTMS consists of a library of digital audio files in AAC format from which users may select and purchase music titles.[24] iTMS was introduced to Macintosh users in April 2003 with a library of 200,000 songs.[25] Six months later, iTMS was expanded to 400,000 titles and made available in a Windows version.[26] Exhibit 4 lists events affecting commerce in downloadable digital audio and video content.

31. During April 2003 through 2008, the cumulative number of music downloads grew from 25 million to over six billion downloads worldwide. According to an international recording industry group, the United States accounts for one-half of

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[23] A codec is a device or computer program used to compress and decompress analog data into and from digital data.

[24] Plaintiff alleges that Apple deliberately disabled the iPod chip's ability to read WMA files, which is the format used by several online music vendors. Complaint at 38-41.

[25] Apple Press Release, April 28, 2003.

[26] Apple Press Release, October 16, 2003.

the value of the worldwide digital music market.[27] Apple iTMS' share reportedly was "over 80 percent" in November 2003 and 85 percent in September 2005.[28] According to an industry research group, 2004 revenue from online music sales in the United States was $415.7 million, with 9.31 million users.[29] The cumulative number of worldwide music and video downloads from Apple iTMS is depicted in Exhibit 13. Other vendors of downloadable digital music include RealOne's Rhapsody, Roxio Napster, and, more recently, Amazon MP3, Wal-Mart Music Downloads, and Zune Marketplace. Apple's quarterly worldwide net sales from the iPod and its music vendor business are shown in Exhibit 14.

32. Digital rights management ("DRM") refers to the use of proprietary formats, often encrypted, to restrict the use and distribution of digital audio files.[30] Some vendors of digital music online sell music free of DRM, including Amazon.com.[31] Other sellers of legally downloaded music files, including Apple, use DRM. "FairPlay" is a proprietary DRM format owned by Apple. DRM-protected files are a specific subset of downloadable audio files. DRM-protected downloads purchased from

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[27] IFPI, *Digital Music Report 2009*, p. 6.

[28] Apple Press Release, November 6, 2003 and Pogue, David. "IPod's Law: The Impossible Is Possible," *New York Times*, September 15, 2005.

[29] Kevorkian, Susan. "Worldwide and U.S. Paid Music Service Provider 2005-2009 Forecast and Analysis: Small Today but Here to Stay," *Market Analysis*, IDC #33364, May 2005 ("IDC, May 2005"), pp. 17-18.

[30] Digital Rights Management is a "chain of hardware and software services and technologies [that] confines the use of digital content to authorized users and manages any consequences of that use throughout the entire life cycle of the content. DRM is one type of content-protection technology." IDC, May 2005, p. 21.

[31] *See* Amazon.com Press Release, "Amazon.com Launches Public Beta of Amazon MP3, a Digital Music Store Offering Customers Earth's Biggest Selection of a la Carte DRM-Free MP3 Music Downloads," September 25, 2007.

iTMS are in AAC format and encrypted with FairPlay. Playback on iPod is possible through the iPod's ability to decode FairPlay-encrypted files. FairPlay restricts the music or video downloaded from iTMS to no more than five computers and an unlimited number of iPods.[32] FairPlay prevents DRM-protected music and video purchased from iTMS from being played on portable digital players other than the iPod.

33. Apple's iTunes jukebox software ("iTunes") is used for managing, organizing and playing music files on personal computers. It has been available to Mac users since early 2001, and to Windows users since late 2003.[33] Prior to the introduction of iTMS, iTunes enabled users to manage and play digital music files, such as those loaded from CDs. iTunes also enabled users to burn music onto CDs. Since Apple introduced iTMS in April 2003, iTunes has enabled encoding, encryption and formatting of digital audio files. Digital audio files purchased from iTMS are encrypted with Apple's FairPlay DRM. Periodic iTunes software upgrades have included changes that have maintained the technology shield between iPods and DRM-protected audio files obtained from sources other than iTMS. For example, an Apple software upgrade in late 2004 blocked RealNetworks' July 2004 Harmony technology, which would have allowed DRM-protected music purchased from the

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32 [redacted]

33 Apple Press Release, January 9, 2001 (http://www.apple.com/pr/library/2001/jan/09itunes.html) and Apple Press Release, October 20, 2003 (http://www.apple.com/pr/library/2003/oct/20itunes.html).

RealPlayer Music Store to have been played on other digital music players (including the iPod).[34]

34. Pricing of digital music files at Apple iTMS was initially uniform at $0.99 per download. Apple began to sell DRM-free audio content from the record company EMI beginning in May 2007. With the removal of DRM from EMI's titles came a two-tier pricing structure, whereby DRM-free downloads were sold at $1.29 each.[35] In January 2009, Apple announced its intention to make its entire music library for sale free of DRM restrictions by March 2009, and allow customers who had previously purchased Fairplay-protected digital audio files to convert to DRM-free format for an additional $0.30 per file or 30 percent of the album price. Apple also announced a three-tier pricing structure for music from iTMS: $0.69, $0.99 and $1.29, with the "vast majority" of songs priced at $0.69.[36]

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[34] Borland, John. "Apple fights RealNetworks' 'hacker tactics'," *CNET News*, December 14, 2004 (http://news.cnet.com/Apple-fights-RealNetworks-hacker-tactics/2100-1027_3-5490604.html).

[35] On October 17, 2007, Apple announced that it removed the $0.30 premium and restored pricing at $0.99 per download. Only three weeks earlier, on September 25, 2007, Amazon.com had launched a public beta of "Amazon MP3" and had begun to sell DRM-free music downloads for $0.89 or $0.99. *See* Apple Press Release, "iTunes Plus Now Offers Over Two Million Tracks at Just 99 Cents," October 17, 2007 and Amazon.com Press Release,"Amazon.com Launches Public Beta of Amazon MP3, a Digital Music Store Offering Customers Earth's Biggest Selection of a la Carte DRM-Free MP3 Music Downloads," September 25, 2007.

[36] Smith, Ethan and Yukari Iwatani Kane. "Apple Changes Tune on Music Pricing," *Wall Street Journal*, January 7, 2009, p. B1 and Apple Press Release, "Changes Coming to the iTunes Store," January 6, 2009.

IV. COMMON PROOF OF IMPACT AND LIABILITY

A. The Nature of the Alleged Misconduct

35. Plaintiff alleges that defendant Apple tied downloads from its iTMS to sales of the iPod portable digital music player. This tie would have served to: (1) distort end consumers' preferences for iPod portable digital music players by elevating the willingness of consumers who had purchased audio and video libraries from iTMS to pay for a given iPod digital music player; and (2) create a ready-made customer base for the iPod inaccessible to other existing or prospective manufacturers of portable digital players. Plaintiff claims further that Apple's alleged misconduct led to monopolization and attempted monopolization of the market for portable digital music players.

1. Tying Purchases of Portable Digital Players to Purchases of Downloadable Digital Music

36. Plaintiff alleges that Apple tied purchases of Apple's iPod to purchases of music files from Apple's iTMS, such that purchasers of music files from iTMS would be coerced into purchasing the Apple iPod. Economic proof of the tie and its impact on iPod purchasers would include evidence of Apple's market power in the market for the tying product (and product and geographic market definition), the coercion of the tie, the effect of the tie on market demand for the Apple iPod relative to demand for portable digital music players supplied by other manufacturers, and the effect of the elevated demand for Apple iPods on prices paid by indirect purchasers.

37. Economic theory regarding tying holds that a firm with market power in one market may attempt to extend that market power into another market by tying consumption of the former product (the tying product) to another (the tied product), such that it is necessary for purchasers to buy the tied product in order to acquire the tying product.[37] Consumers are thus coerced into purchasing the tied product. In order to evaluate whether a firm, such as Apple, engaged in tying, it is necessary to first determine whether the firm possesses monopoly power in the market for the tying product (downloadable digital music). Ascertaining market power requires defining relevant product and geographic markets and establishing the ability to raise price or restrict output in the relevant market.

38. Once market power in the market for the tying product is established, it is necessary to determine whether the tie is coercive. Demonstrating coercion requires demonstrating that customers do not inherently need to purchase the two product types (portable digital players and downloadable digital music) together. Economists would describe the two products as having the characteristic of separable demand. One example of products likely not to have separable demand is hamburger patties and buns sold in a restaurant. An example of products likely to have separable demand is a hamburger and a side salad.

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[37] *See*, for example, Carlton, Dennis W. and Jeffrey M. Perloff. *Modern Industrial Organization: Fourth Edition*. Pearson: Addison-Wesley, Boston, 2005 (hereinafter, "Carlton and Perloff"), pp. 389-390 and Viscusi, W. Kip, Joseph E., Harrington, Jr., and, John M. Vernon. *Economics of Regulation and Antitrust: Fourth Edition*. MIT Press, Cambridge, MA, 2005 (hereinafter, "Viscusi et al."), pp. 266-269, 275-280.

39. Plaintiff alleges that Apple engaged in tying by exploiting its leading market position in online music and video sales into a leading position in sales of portable digital players. Plaintiff alleges that Apple contrived to subvert technological interoperability between the digital audio files sold from Apple iTMS and portable digital players other than the Apple iPod through Apple's use of its proprietary FairPlay DRM and its unwillingness to license FairPlay to other vendors of portable digital players. As it is commonly understood that it is difficult or impossible to play DRM-protected music purchased from iTMS on portable digital players other than the Apple iPod,[38] iTMS customers with libraries of music purchased for $0.99 per title from iTMS are allegedly locked in to the Apple iPod. To purchase a portable digital player other than an iPod would for practical purposes require such customers to abandon their library of DRM-protected music.

40. Techniques for consumers to avoid the tie between iTMS and iPods are flawed. "Burn and rip" as a work-around has only limited viability. This term refers to the practice of burning the Fairplay-encrypted file onto a CD, which removes the DRM from the file, and then ripping that file back onto the computer into a digital format, such as MP3, that is playable on other digital music players. Among "burn and rip's" disadvantages are: (1) degradation of sound quality if the file is ripped into a

[38] *See*, for example, Smith, Ethan and Yukari Iwatani Kane. "Apple Changes Tune on Music Pricing," *Wall Street Journal*, January 7, 2009, p. B1 ("Apple's DRM has made it complicated for iTunes customers to use competitors' products, like SanDisk Corp. music players or Microsoft Corp.'s Zune. Among the limits imposed by the software locks, it is difficult or impossible to play songs purchased from the iTunes Store on devices other than the iPod or iPhone.").

"lossy" digital format, such as MP3;[39] (2) a significantly larger file size if the file is ripped into a "lossless," or uncompressed, digital format (which, all else equal, reduces the number of audio and video files a given portable digital player is able to hold);[40] (3) the duration of time and effort required to "burn and rip" each downloaded file, time and effort which are magnified for those iTMS customers with extensive libraries; and (4) the possible illegality of the practice.[41] Furthermore, consumers may not have been aware or may not have been informed by Apple that the "burn and rip" procedure can be used to remove a file's DRM.

41. Plaintiff also alleges that Apple deliberately disabled the iPod chip's ability to read WMA files, a format used by several online music vendors.[42] This "crippleware" allegedly reduces the usefulness of music files in WMA format to iPod owners by preventing iPod owners from playing music in WMA format on the iPod. If so, this crippleware reinforces the incentive for iPod owners to purchase music from iTMS over other online music vendors and enhances the lock-in effect to the iPod.

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[39] "[W]hen converting between compressed formats (for example MP3 and AAC), you may notice a reduction in the sound quality." Apple Support, "iTunes: How to convert a song to a different file format," Article No. HT1550, last modified December 19, 2008 (http://support.apple.com/kb/HT1550).

[40] "Once a song is compressed (meaning some of its data is lost) you cannot retrieve the data by uncompressing it. If you convert a song from a 'lossy' format to a *(sic)* uncompressed format, the quality of the song will not improve and the file will only take up more disk space." *Id.*

[41] Section 10(b)(x) of the "Terms and Conditions" of the Apple iTMS states, "You agree that you will not attempt to, or encourage or assist any other person to, circumvent or modify any security technology or software that is part of the Service or used to administer the Usage Rules." (http://www.apple.com/legal/itunes/us/terms.html#SERVICE).

[42] Complaint at 38-41.

42. More recently, Apple announced that, by March 2009, it would make music downloads from its entire iTMS library available for sale free of DRM restrictions, and would allow customers to upgrade their previously purchased songs to the DRM-free version for $0.30 each or 30 percent of the album price.[43] Even with the removal of the FairPlay DRM, the anticompetitive consequences of Apple's alleged violations would persist, if the tie hastened the exit of competitors and elevated barriers to entry sufficient to deter prospective competitors, and if the tie dampened incentives to innovate.

43. Economic theory recognizes the potential anticompetitive effects of tying, including deterring entry by foreclosing a portion of the market from the potential entrant. Characteristics of the portable digital player market as one of rapid innovation and technological dynamism magnify the potential competitive harm of tying. In their antitrust economics textbook, Professor Viscusi and his co-authors describe the outcome of a multi-period tying model:

> Instrumental in tying as an entry deterrence device is that an entrant has a limited number of periods for which it can earn profit to cover its entry cost. Where such a force may be relevant is in highly innovative markets where a new product may already have a relatively short technological life span as newer products come along to replace it. Tying that reduces the lifetime of an entrant's product, where this lifetime is already short, may indeed serve to deter entry.[44]

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[43] Smith, Ethan and Yukari Iwatani Kane. "Apple Changes Tune on Music Pricing," *Wall Street Journal*, January 7, 2009, p. B1 and Apple Press Release, "Changes Coming to the iTunes Store," January 6, 2009. There are indications of difficulties in executing the upgrades. *See* Simmons, Christopher Laird. "Behind the Eye: Upgrading iTunes Library to DRM Free is Not So Easy," *Music Industry Newswire*, February 5, 2009 (http://musicindustrynewswire.com/2009/02/05/min1111_213823.php).

[44] Viscusi et al., pp. 278-280 at 280.

44. The potential consequences to competition arising from Apple's alleged misconduct include deterred or delayed entry by potential portable digital player competitors and the exit of existing competitors, such as Dell and Rio. By tying iTMS purchases to the iPod as alleged, Apple foreclosed a pool of potential consumers of competitor portable digital players. A product with high fixed costs of production (such as research and development costs) tends to have higher minimum efficient scale. Minimum efficient scale refers to the quantity that the firm must produce in order to minimize long-run average cost.[45] If a prospective producer faces a market that is foreclosed (such as due to a tie), that prospective producer may be unable to produce and sell sufficient quantities to achieve its minimum efficient scale and therefore choose not to enter. A firm that enters may similarly choose to exit. Exit and deterrence of entry by competitors in a market with few sellers and high market concentration may harm competition by enhancing the market power of remaining suppliers, reducing price competition, and reducing product innovation

45. The aggregate effect of Apple's alleged coercive tie (by forcing consumers who desired to listen portably to music purchased from iTMS to buy an iPod) on the market demand and price for the Apple iPod would be demonstrable using common proof, including Apple's iTMS purchaser download data. The extent of foreclosure depends on the distribution of the number of iTMS purchaser downloads by customer. The distribution could be used to partition the customer base according to cost of switching from the Apple iPod to a portable digital player manufactured by

[45] Carlton and Perloff, pp. 41-42.

a competitor. The concentration of DRM-protected purchases informs the degree to which the iTMS customer base was locked in to the Apple iPod and the impact that the demand that Apple "built-in" for the iPod had on iPod prices. Another potential source of information and data about the presence (or absence) and degree of coercion is a consumer survey. A survey of a random sample of U.S. consumers might be used to identify the determinants of the decision to purchase different brands of portable digital players, including the role of existing libraries of digital music and video files. Both Apple records of iTMS customer purchases and such a consumer survey would be common evidence used to determine the market-level effect of Apple's tie between iTMS and the iPod.

46. Apple's use of the FairPlay DRM allegedly imparted exclusive interoperability between music purchased from iTMS and the iPod player when iTMS was launched in 2003.[46] The allegedly exclusive interoperability between the digital audio and video downloads from iTMS and the iPod appears to have been Apple's explicit commercial strategy. By early 2005, Apple perceived the tie between iTMS and iPod to be effective, noting in its Annual Report:

> The Company's services and products relating to music and other creative content have already encouraged significant competition from other companies, many of whom have greater financial, marketing, and manufacturing resources than those of the Company. The Company faces increasing competition from other companies promoting their own digital music products and distribution services,

[46] Interoperability expanded slightly in September 2005, when Motorola offered a mobile phone with iTunes software. Apple 10-K, 2005, p. 10 ("In September 2005, the Company, Motorola Inc., and Cingular Wireless LLC announced the availability of a mobile phone with iTunes software (Motorola ROKR), enabling users to transfer up to 100 songs from the iTunes library on their Macintosh or Windows-based computers to their Motorola ROKR mobile phones.").

> subscription services, and free peer-to-peer music services. The Company anticipates that competition will intensify as hardware, software, and content providers work more collaboratively to offer integrated products competing with the Company's offerings. **However, the Company believes it currently maintains a competitive advantage by more effectively integrating an entire solution, including the hardware (iPod), software (iTunes), and distribution of third-party digital content (iTunes Music Store).** (*emphasis added*)[47]

and

> Strong demand for the iPods during 2004 were experienced in all of the Company's operating segments and was driven by enhancements to the iPod, the introduction of the iPod mini, increased expansion of the Company's iPod distribution network, and **continued success of the iTunes Music Store** due largely to making it available to both Macintosh and Windows users in the U.S., U.K. France, and Germany. (*emphasis added*)[48]

47. Industry researchers also noted in a 2005 report Apple's intention to leverage iTMS into iPod sales: "Today, Apple's own iPod compressed audio players are the only devices on the market capable of playing iTunes music, though the company has licensed FairPlay to Motorola, which plans to launch an iTunes compatible handset this year. **This policy is consistent with Apple's stated goal of driving iPod compressed audio player sales with iTunes Music Store....**"[49]

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[47] Apple 10-K, 2005, p. 13.

[48] Apple 10-K, 2005, p. 33

[49] IDC, May 2005, p. 4.

2. *Monopolization and Attempted Monopolization*

48. Plaintiff further claims that Apple's conduct impaired and threatened to continue to impair the ability of competitor producers of portable digital players to market and sell their products, and enabled Apple to sustain market power in the market for portable digital players. Apple's alleged monopolization and attempted monopolization derived from its alleged foreclosure of, and the elevation of barriers to entry into, the market for portable digital players.

49. Apple's use of its FairPlay DRM and its unwillingness to license the technology to competitors have allegedly restricted the access of its portable digital player competitors only to a segment of consumers in the market. Possible consequences of this alleged market foreclosure are reduced price competition, elevated barriers to entry, more limited innovation and product variety, features and functionality,[50] and weakened commercial viability of existing producers. The tie between Apple's iTMS and iPod would have elevated barriers to entry into both the markets for portable digital players and for downloadable digital music by requiring existing and potential manufacturers of each to compete in both markets.

50. Analysis of barriers to entry offers one example of common proof of impact of Apple's alleged monopolization of the market for portable digital player. Industry analysts detail the barriers and the elevation of rivals' costs imposed by Apple's alleged misconduct:

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[50] For example, complaints about the iPod include the built-in obsolescence of its hard drive models, poor battery life and difficulty of battery replacement.

> The fact that an audio codec *and* a DRM must both be supported by a device and/or PC media software in order for a music file to be played complicates the issue of hardware and software compatibility and can add cost to vendors who must pay to license both those technologies, especially if they come from different sources. In addition, the codec/DRM pairing issue can exclude vendors from supporting music from a given online music service if the former is available and not the latter, or vice versa. For example, on the pay-per-download front, this is the case with music downloaded from Apple's iTunes Music Store, which is encoded in the AAC file format and protected with Apple's proprietary FairPlay DRM. It is not sufficient for a device to only support AAC in order to play back iTunes music it must also support FairPlay, and to date Apple has strictly limited FairPlay licensing to competing hardware and software vendors. (*emphasis in original*)[51]

Additional barriers to entry into the market for portable digital players may include costs to develop brand and product awareness, such as through advertising and marketing. Microsoft's Zune portable player and Zune Marketplace, both launched in November 2006, would appear to surmount the brand awareness barrier. However, despite Microsoft's resources, by the first half of 2008, the Zune player accounted for only three percent of the portable digital player market.[52] Analysis of the impact of the alleged market foreclosure relies on common evidence to determine the extent to which Apple's alleged conduct foreclosed a substantial volume of the market for portable digital players. This common evidence includes information about the exit of other manufacturers (including Rio, which manufactured and sold one of the first MP3 players).[53]

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[51] IDC, May 2005, pp. 3-4.

[52] Bishop, Todd. "Microsoft says Zune here to stay," *Seattle Post-Intelligencer*, September 10, 2008.

[53] Van Buskirk, Eliot. "Introducing the world's first MP3 player, *CNET Reviews*, January 21, 2005 (http://reviews.cnet.com/4520-6450_7-5622055-1.html) and Dyszel, Bill. "Rio Exits the MP3 Player Business," *PCMag*, August 26, 2005.

B. Market Definition of the Tying Product (Digital Music)

51. Economic analysis of a tying claim requires establishing the defendant's market power in the market for the tying product, which, in turn, may require defining the relevant market for antitrust purposes. Defining a relevant product market consists of determining which products are close demand or supply substitutes.[54] Conceptual approaches to defining a product market for antitrust purposes includes the "hypothetical monopolist test," also referred to as the "SSNIP" test (for "small but significant and nontransitory increase in price"),[55] and statistical relationships between the price of the product of interest and that of potential product substitutes.

52. With the hypothetical monopolist test, the analyst begins with a narrowly defined product, assumed to be sold by a single firm, and examines the behavior of the prices of and supply and demand for potential substitutes in response to a "small but significant and nontransitory increase in price" in the narrowly defined product. A common threshold is a five percent price increase. If such a price increase yielded increases in the demand and prices of potential substitutes, then such potential demand substitutes would be reasonably considered to be in the same product market as the product of interest. Similarly, if such a price increase yielded decreases in the supply of and increases in the prices of potential supply substitutes, as sellers of these potential substitutes shifted sales from the potential substitutes to

[54] Carlton and Perloff, pp. 645-648.

[55] U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines*, April 8, 1997, pp. 7-8.

sales of the product of interest, then that potential supply substitute would be reasonably included in the same product market as the product of interest.

53. Defining a product market may also involve examining statistical relationships between the price of the product of interest and that of potential product substitutes. The absence of co-movement between prices of two products tends to rule out their inclusion in the same product market. Statistics of interest include positive correlation or cointegration between pairs of price series over time, stationarity in their relative price (the ratio of one price to the other), and elasticities.

54. Elasticities measure the responsiveness of one statistic to changes in another. The cross-elasticity of demand, for example, measures the effect of an incremental change in the price of one product on the quantity demanded of another product. With sufficient data, it is possible to estimate such an elasticity using econometric modeling. If product A is a demand substitute for product B, then the cross-elasticity of demand for product B in response to a change in the price of product A is positive.

55. Potential demand substitutes for downloadable digital music include music sold on CDs, music in analog formats, conventional radio, satellite radio, and other entertainment media, such as movies, television, live performances, books or other print media. Potential supply substitutes include other entities that can reach agreements with the previously mentioned major music labels (i.e., EMI, Warner

Music Group, BMG, Universal and Sony Music Entertainment Group) or provide music from independent labels to offer music for sale online. Analysis of whether these potential substitutes are in the same product market as downloadable digital music would be conducted using common evidence and on a common basis.

C. Geographic Market Definition

56. Many of the approaches for defining a relevant geographic market for antitrust purposes are similar to those for product market definition.[56] In this matter, however, because access to online music is generally not geographically constrained within the United States, and to the extent that access to the non-U.S. storefronts of the major online music vendors may be limited from the United States, it is reasonable to conclude that the geographic market for downloadable digital music is the United States.

D. Determination of Market Power

57. "Market power" is an economic concept describing the ability of a buyer or seller (or, collectively, a group of buyers or a group of sellers) to affect market prices and quantities and to set profitably price above its marginal cost. This concept is also referred to as "monopoly power."[57] Market power may arise due to first mover advantage, economies of scale (such as due to high capital intensity), and the presence of barriers to entry (such as due to patent protection). Indicators of market

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[56] Carlton and Perloff, p. 648.

[57] Carlton and Perloff, p. 93.

power include high market share, ability to price discriminate, and the ability to earn or sustain supracompetitive profits.

1. Market Share and Concentration

58. High market share and high concentration may convey market power to a seller or group of sellers. Common measures of concentration include the C4, which is the sum of the market shares of the four largest sellers, and the Herfindahl-Hirschman Index ("HHI"), which is the sum of the squares of the market share of each seller. The maximum value for HHI is 10,000, when there is a monopoly. The value of the HHI when there are 100 firms in a market, each with an equal share, is 100. According to the DOJ and FTC's *Horizontal Merger Guidelines*, markets with an HHI below 1000 are considered "unconcentrated," between 1000 and 1,800 are deemed "moderately concentrated," and in excess of 1,800 are designated "highly concentrated."[58]

59. As described above in paragraph 31, during 2003, Apple reported its share of legal digital music downloads as in excess of 80 percent. It does not appear to be in dispute that Apple iTMS has a large market share. Such information regarding Apple's and other manufacturers' shares of the online music downloads in the United States and Canada is available through market tracking entities such as Nielsen SoundScan[59] and through Apple press releases. Market share data can be

[58] U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines*, April 8, 1997, p. 15.

[59] http://www.soundscan.com.

used to compute measures of industry concentration such as the C4 and the HHI. Such methodologies and data are common to all members of the proposed Classes.

2. Barriers to Entry

60. The determination of barriers to entry into the market for online music downloads during the Class Period would be made by common proof. Potential barriers to enter this market include the need to obtain music content, the need to obtain the rights to distribute content,[60] and the need to obtain the rights to distribute content that is compatible with at least one portable digital player. The alleged tie that Fairplay imposes on music purchased from Apple iTMS and the Apple iPod suggests the need to enter in both the online music and the portable player markets.

3. Indicators of Market Power

61. Identification of indicators of Apple's market power in online digital music sales would also rely on common evidence. Among these indicators is the ability to set market prices, including price discrimination. Apple's documents showing list prices for identical iPod products for different direct purchaser segments, including wholesalers, direct purchase resellers, and educational and government entities, are examples of price discrimination. Supracompetitive profits are another indicator of market power. Whether Apple earned and sustained such profits would be

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[60] Market analyst group IDC states, "Licensing agreements with music copyright holders are a requirement for any paid MSP [music service provider] to do business and the factor that distinguishes legitimate services from illegitimate ones. But acquiring copyright licenses can be challenging for several reasons. U.S. music copyright law...has been incompletely revised to take into account current music distribution technology, including online and wireless music distribution." (IDC, May 2005, p. 2)

determined by examining Apple's price-cost margins for its iTMS music store.[61] Apple's annual and quarterly SEC filings report "net sales by product," including "Other music related products and services," which "consists of iTunes Store sales, iPod services, and Apple-branded and third-party iPod accessories"[62] (Exhibit 14 and Exhibit 15). These data suggest Apple maintains records that would enable examination of profit margins for the iTMS line item, records that would constitute evidence common to all members of the proposed Classes.

E. Common Proof of Impact on Indirect Purchasers

62. One approach to showing impact on indirect purchasers is to demonstrate impact on direct purchaser resellers, and show that direct purchasers passed that impact through to indirect purchasers. Because the alleged tie and the monopolization described above, if true, affected consumer preferences, by artificially elevating consumer demand for the Apple iPod, and because it is likely that Apple's alleged misconduct affected competition, product variety, and prices at the consumer level, another approach is to estimate the overcharge directly from iPod retail data.

63. Wholesaler and retailer profit margins inform the likelihood of pass-through of supracompetitive direct purchaser prices to indirect purchasers. If wholesalers and retailers do not pass such prices on to consumers, their profits margins become squeezed. At the extreme, failing to pass through supracompetitive prices to

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[61] Carlton and Perloff, pp. 642-643.

[62] *See*, for example, Apple 10-K, 2006, p. 54.

customers can cause profit margins to disappear. Wholesalers and retailers therefore have a strong incentive to pass through supracompetitive prices. Indeed, Professor Noll concurs that "intermediaries who resold iPods are likely to pass on their wholesale overcharge to their customers."[63] Econometric methods to determine pass-through of direct purchaser iPod prices to consumers are discussed below in paragraph 68.

V. FEASIBLE METHODS TO ESTIMATE CLASS-WIDE DAMAGES ON A COMMON BASIS

64. The approach to calculate damages incurred by indirect purchasers is to estimate Apple's overcharge to direct purchasers for iPods and then estimate the proportion of that overcharge passed-through to indirect purchasers. An alternative is to determine damages to indirect purchasers directly, at the retail level. The latter approach requires data on retail sales and prices of iPods during the Class Period and outside the Class Period.

A. Methodology

65. A conventional methodology to determine but-for prices, the prices that indirect purchasers of iPods would have paid but for the presence of the tie to DRM-protected music from iTMS, is to estimate (1) the effect of the alleged misconduct on direct purchaser prices paid for the Apple iPod and then (2) the amount of pass through to indirect purchasers. There are three possible approaches to determine the direct purchaser overcharge: reliance on a temporal or "yardstick" competitive

[63] Noll Decl., p. 14.

benchmark or margin analysis. Temporal benchmarks include comparing prices "before-during," "during-after," or "before-during-after" periods. The yardstick approach may compare iPod pricing in the United States with the pricing of another product (such as other MP3 players) or another geographic market in which no tie is alleged to have existed. Margin analysis is another possible approach, whereby the analyst evaluates the price-cost margins for iPods over time

66. A competitive benchmark may be a time period outside of the Class Period when the conduct at issue did not occur. One possibility is the 19-month period between October 2001 and April 2003, when Apple sold the iPod but before it began selling music through iTMS. Another possible benchmark period is the span of time after it removes the DRM on all its music download sales, which Apple announced would occur by March 2009.

67. Under the temporal competitive benchmark approach, the analyst can construct a log-linearized econometric model[64] to explain the direct purchaser price of the iPod as a function of the misconduct indicator variable;[65] market variables measuring demand, supply conditions and manufacturing costs; and the presence of features and functions specific to iPod models, which may include generation of the

[64] Log-linearizing describes the process of transforming a nonlinear function, such as one expressed as a product of terms with exponents, into a linear function by taking the natural log of both sides of the equation. For example, log-linearizing the basic Cobb-Douglas production function, $Y = \alpha L^{\beta} K^{\gamma}$, yields $ln Y = \alpha + \beta ln L + \gamma ln K$.

[65] The misconduct indicator variable takes a value of one during the period of alleged misconduct, and zero during the benchmark period. An indicator variable is sometimes referred to as a dummy variable or a binary variable.

technology, capacity, battery life, scrolling device, the size and type of display, and video playback capability. Such analysis is possible with iPod data discovered from Apple containing data fields for (or data fields sufficient to derive) selling or invoice date, product code and product description, purchaser name, units purchased, and selling price (net of any rebates, discounts, or "business development funds," and including any surcharges). The coefficient on the misconduct variable yields a measure of the overcharge percentage to direct purchasers. Applying this overcharge percentage to Apple's revenues from direct sales of the iPod to resellers [redacted] yields the total amount of overcharges.

68. The temporal benchmark approach would yield an estimate of the overcharge to direct purchasers of the iPod. To estimate pass-through to indirect purchasers, one would perform additional econometric analysis on retail iPod price data matched to the direct purchaser price data, by iPod model, month or quarter of purchase, and retail outlet. The analyst would regress a log-linearized model of the indirect purchaser price on the direct purchaser price and other relevant variables. The estimated coefficient of the direct purchaser price is interpreted as the degree to which a one percent change in the direct purchaser price affects the indirect purchaser price, and thus would measure the degree of pass through on a common

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66 [redacted]

basis. Multiplying this coefficient by the total amount of overcharges to direct purchasers yields an estimate of class-wide damages for the Indirect Purchaser Damages Class.

69. A more direct approach to measuring damages incurred by the proposed Indirect Purchaser Damages Class is to perform regression analysis using retail iPod prices. Such regression analysis would attempt to explain variation in retail iPod prices due to the presence (or absence) of the alleged misconduct using an indicator variable, market dynamics, and product features. The coefficient of the misconduct variable would yield a measure of the overcharge to indirect purchasers that is common to members of the proposed class. Once the overcharge to indirect purchasers is known, the quantum of class-wide damages is computed by multiplying the overcharge percentage by an estimate of the retail sales of Apple iPods to indirect purchasers.

B. Data

70. The iPod price data necessary to perform the analyses described above include (1) Apple iPod direct purchaser transaction data beginning in October 2001 until the present and (2) retail data for Apple iPods, such as that collected by the NPD Group. The NPD Group is a private market and consumer research firm that, *inter alia*, collects and reports retail information for specific product segments, including consumer technology such as portable digital players, at point of sale from specific

retailers. Clients of the NPD Group include manufacturers, retailers, and service providers.[67]

71. Data for explanatory variables include the costs of producing the Apple iPod, other supply-side market variables, such as competitor entry dates, a demand variable, and product characteristics such as those derived from model descriptions or SKU definitions.

VI. CONCLUSIONS

72. Based on the common analysis and evidence herein, the following conclusions have been reached:

a. Proof of whether the proposed Classes have been economically injured by Apple's alleged misconduct would be predominantly common to Class members;

b. Feasible methodologies exist for calculating aggregate, class-wide damages to the Indirect Purchaser Damages Class on a common basis; and

c. Economic analysis of liability issues would be common to all Class members.

[67] http://www.npd.com/corpServlet?nextpage=profile_s.html.

Gary L. French

Subscribed in my presence and sworn to before me on this 23rd day of February, 2009, in Arlington, Virginia.

Notary Public

My commission expires on 10/31/2010.

Commonwealth of Virginia
Margaret L. Spriggs - Notary Public
Commission ID: 7033040
My Commission Expires 10/31/2010

REDACTED

REDACTED

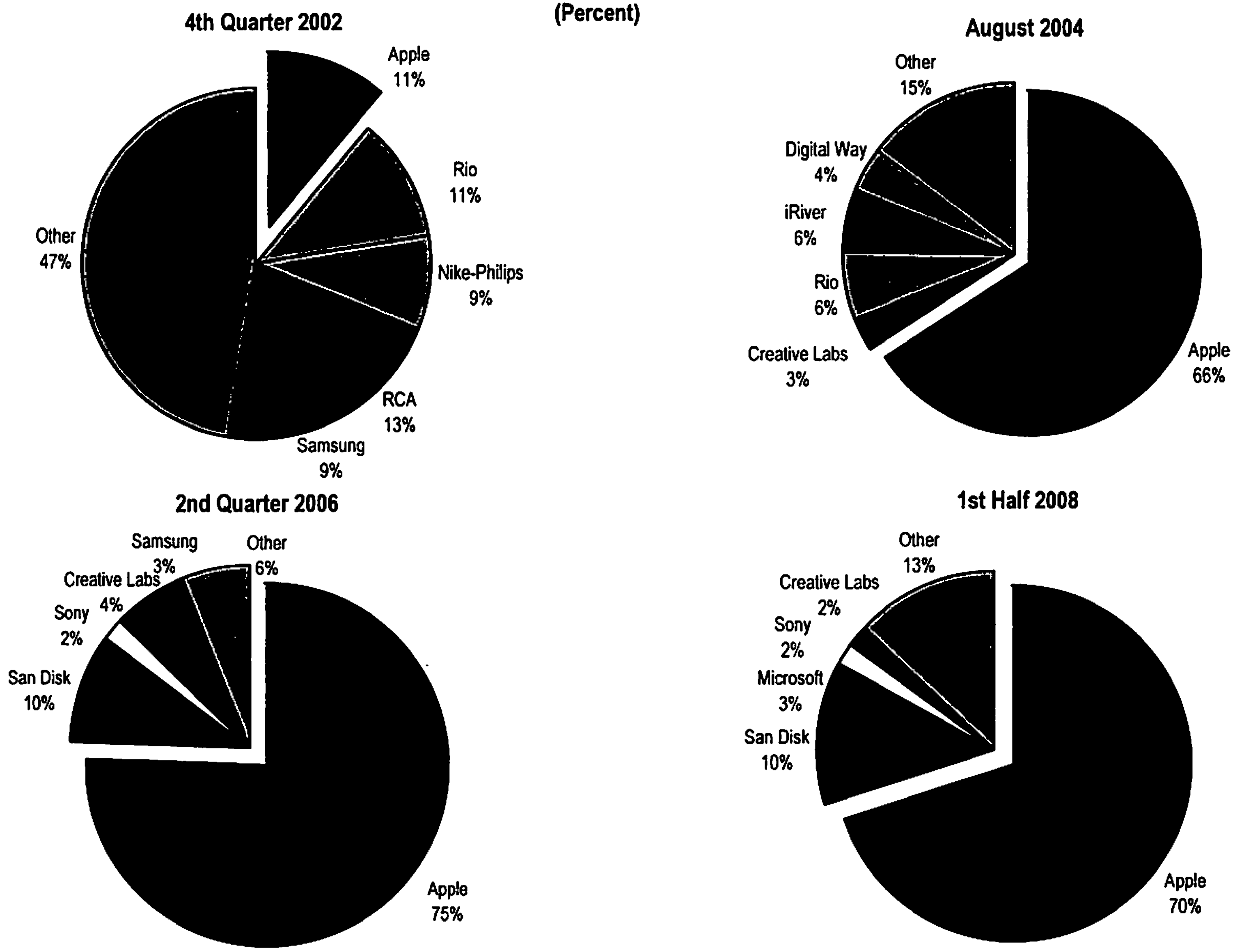
Exhibit 2. iPod Product Varieties

Model	Year-Month Introduced [a]	Type	Generation	Scrolling device	Capacity
iPhone 3G (8 GB or 16 GB)	2008-06	Flash	n/a	Multi-touch Display	8 GB or 16 GB
iPhone (16 GB)	2008-02	Flash	n/a	Multi-touch Display	16 GB
iPhone (4 GB or 8 GB)	2007-01	Flash	n/a	Multi-touch Display	4 GB or 8 GB
iPod touch (2nd generation)	2008-09	Flash	2nd	Multi-touch Display	8 GB, 16 GB or 32 GB
iPod touch (32 GB)	2008-02	Flash	1st	Multi-touch Display	32 GB
iPod touch (8 GB or 16 GB)	2007-09	Flash	1st	Multi-touch Display	8 GB or 16 GB
iPod classic (120 GB)	2008-09	Hard drive	5th	Click Wheel	120 GB
iPod classic (80 GB or 160 GB)	2007-09	Hard drive	5th	Click Wheel	80 GB or 160 GB
iPod (5th generation late 2006) (30 GB or 80 GB)	2006-09	Hard drive	5th	Click Wheel	30 GB or 80 GB
iPod (5th generation) (60 GB)	2005-10	Hard drive	5th	Click Wheel	60 GB
iPod (5th generation) (30 GB)	2005-10	Hard drive	5th	Click Wheel	30 GB
iPod with color display (60 GB)	2005-06	Hard drive	4th	Click Wheel	60 GB
iPod with color display (20 GB)	2005-06	Hard drive	4th	Click Wheel	20 GB
iPod photo (30 GB) (also known as iPod with color display)	2005-02	Hard drive	4th	Click Wheel	30 GB
iPod photo (40 GB) (also known as iPod with color display)	2004-10	Hard drive	4th	Click Wheel	40 GB
iPod photo (60 GB) (also known as iPod with color display)	2004-10	Hard drive	4th	Click Wheel	60 GB
iPod (20 GB Click Wheel)	2004-07	Hard drive	4th	Click Wheel	20 GB
iPod (40 GB Click Wheel)	2004-07	Hard drive	4th	Click Wheel	40 GB
iPod (20 GB dock connector)	2003-09	Hard drive	3rd	Touch Wheel	20 GB
iPod (40 GB dock connector)	2003-09	Hard drive	3rd	Touch Wheel	40 GB
iPod (10 GB dock connector)	2003-04	Hard drive	3rd	Touch Wheel	10 GB
iPod (15 GB dock connector)	2003-04	Hard drive	3rd	Touch Wheel	15 GB
iPod (30 GB dock connector)	2003-04	Hard drive	3rd	Touch Wheel	30 GB
iPod (10 GB touch wheel)	2002-07	Hard drive	2nd	Touch Wheel	10 GB
iPod (20 GB touch wheel)	2002-07	Hard drive	2nd	Touch Wheel	20 GB
iPod (10 GB scroll wheel)	2002-03	Hard drive	1st	Scroll Wheel	10 GB
iPod (5 GB scroll wheel)	2001-10	Hard drive	1st	Scroll Wheel	5 GB
iPod nano (4th generation)	2008-09	Flash	4th	Click Wheel	8 GB or 16 GB
iPod nano (3rd generation)	2007-09	Flash	3rd	Click Wheel	4 GB or 8 GB
iPod nano (2nd generation) (2 GB, 4 GB, or 8 GB)	2006-09	Flash	2nd	Click Wheel	2 GB, 4 GB, or 8 GB
iPod nano (1 GB)	2006-02	Flash	1st	Click Wheel	1 GB
iPod nano (4 GB)	2005-09	Flash	1st	Click Wheel	4 GB
iPod nano (2 GB)	2005-09	Flash	1st	Click Wheel	2 GB
iPod mini (4 GB 2nd generation)	2005-02	Hard drive	2nd	Click Wheel	4 GB
iPod mini (6 GB 2nd generation)	2005-02	Hard drive	2nd	Click Wheel	6 GB
iPod mini	2004-01	Hard drive	1st	Click Wheel	4 GB
iPod shuffle (2nd generation Early 2008) (2 GB)	2008-02	Flash	2nd	n/a	2 GB
iPod shuffle (2nd generation) (1 GB)	2006-09	Flash	2nd	n/a	1 GB
iPod shuffle (512 MB)	2005-01	Flash	1st	n/a	512 MB
iPod shuffle (1 GB)	2005-01	Flash	1st	n/a	1 GB

[a] Date introduced does not always coincide with beginning date of sale in marketplace.
Sources: Apple Support: "Identifying iPod models" last modified on February 04, 2009 at http://support.apple.com/kb/HT1353 anc
iPhone information from Apple Press Releases at http://www.apple.com/pr/library/2008/06/09iphone.html,
http://www.apple.com/pr/library/2008/02/05iphoneipodtouch.html and http://www.apple.com/pr/library/2007/01/09iphone.html.

Exhibit 3. U.S. Portable Digital Player Market Shares Based on Units Sold, Various Years

(Percent)


4th Quarter 2002
Apple 11%
Rio 11%
Nike-Philips 9%
RCA 13%
Samsung 9%
Other 47%
August 2004
Other 15%
Digital Way 4%
iRiver 6%
Rio 6%
Creative Labs 3%
Apple 66%
2nd Quarter 2006
Samsung 3%
Other 6%
Creative Labs 4%
Sony 2%
San Disk 10%
Apple 75%
1st Half 2008
Other 13%
Creative Labs 2%
Sony 2%
Microsoft 3%
San Disk 10%
Apple 70%

Sources: NPD data in http://www.macobserver.com/article/2003/03/13.10.shtml, http://www.macobserver.com/article/2004/11/03.2.shtml, http://www.macworld.com/article/52444/2006/08/musicplayer.html and Seattle P-I, Microsoft Zune here to stay, 9/10/08.

Exhibit 4. Timeline of Portable Digital Player and Online Music Events

Online Music	Date	Player
MP3 created by French company Thomson and German Fraunhoffer Institute (DRM free) (*The Future of the Music Industry: MP3, DVD-Audop, and More*, IDC October 2009, p.29)	1992	
Winamp software compression/decompression (codec) program released onto the market as shareware (*The Future of the Music Industry: MP3, DVD-Audop, and More*, IDC October 2009, p.8)	late 1997	
	Summer 98	Eiger Labs MPMan F10 and F20 are the first mass-produced MP3 players in the US http://reviews.cnet.com/4520-6450_7-5622055-1.html
	1998	Diamond Multimedia creates Rio portable device (*The Future of the Music Industry: MP3, DVD-Audop, and More*, IDC October 2009, p.8)
Microsoft introduces Windows Media Technologies 4 and Windows Media Audio (WMA) codec, an improvement on MP3 http://www.microsoft.com/presspass/press/1999/Aug99/WM4Lnchpr.mspx	8/17/1999	
Napster file-sharing shut-down after court orders http://news.cnet.com/Database-upgrades-keep-Napster-down/2100-1023_3-269367.html?tag=mncol	Jul-01	
	Oct-01	iPod 1st Gen. 5GB Scroll Wheel introduced http://support.apple.com/kb/HT1353
	Mar-02	iPod 1st Gen. 10GB Scroll Wheel introduced http://support.apple.com/kb/HT1353
	Jul-02	iPod 2nd Gen. 10GB and 20GB Touch Wheel introduced http://support.apple.com/kb/HT1353
iTunes (for Macs) launched with 200,000 songs (Apple Press Release 4/28/03)	4/28/2003	
	5/2/2003	3rd Gen. iPod for sale, 10 GB, 15 GB and 30 GB Touch Wheel (Apple Press Release 4/28/03)
RealOne's Rhapsody released (subscription only) (*Apple iTunes Jump-Starts Windows Digital Music,* Forrester Research, By Josh Bernoff, 10/17/03)	5/28/2003	
	9/8/2003	20GB and 40GB iPods(3rd Gen., Click Wheel) introduced (Apple Press Release 9/8/03)
Musicmatch player released (*Apple iTunes Jump-Starts Windows Digital Music,* Forrester Research, By Josh Bernoff, 10/17/03)	9/29/2003	
	Sep-03	Archos AV-300, the first mobile media player (video, music and photo) is launched (*Worldwide and U.S. Portable Multimedia Player 2004-2008 Forecast and Analysis: Got Video?*, IDC Nov 2004, p. 2)
2nd Gen. iTunes Music Store (for Macs and Windows) with approx. 400,000 songs is launched, now including Audiobooks via deal with Audible.com (Apple Press Release 10/16/03)	10/16/2003	
	2/20/2004	Mini (1st Gen.) 4GB, Click Wheel (Apple Press Release 2/17/04)
3rd Gen. iTunes Music Store (Apple Press Release 4/28/04)	4/28/2004	
	7/19/2004	4th Gen. iPod, 20 GB and 40 GB, Click Wheel (Apple Press Release 7/19/04)

Exhibit 4. Timeline of Portable Digital Player and Online Music Events

Online Music	Date	Player
RealNetwork launches its RealPlayer 10.5 with Harmony technology, which enables consumers to buy and download music that plays on more than 100 portable devices, including the Apple iPod (RealNetworks Press Release 8/17/04)	8/17/2004	
iTunes Affiliate Program (Apple Press Release 9/1/04)	9/1/2004	
	9/15/2004	HP begins shipment of its 20GB and 40GB iPods http://news.cnet.com/HP-tips-its-hand-on-new-iPod/2100-1041_3-5326143.html?tag=mncol
iTunes 4.7 released (Apple Press Release 10/26/04)	10/26/2004	iPod Photo 40 GB and 60 GB for sale (color display) (Apple Press Release 10/26/04)
	10/26/2004	iPod U2 Special Edition 20GB (Apple Press Release 10/26/04)
Apple software upgrade blocks Harmony technology http://news.cnet.com/Apple-fights-RealNetworks-hacker-tactics/2100-1027_3-5490604.html?tag=mncol	12/14/2004	
	1/11/2005	1st Gen. Shuffle 512MB and 1GB (Apple Press Releases 1/11/05)
	2/23/2005	2nd Gen. Mini, 4 GB and 6 GB iPod Photo 30GB and 60GB (color display) (Apple Press Releases 2/23/05)
iTunes 4.9, with podcasts (Apple Press Release 6/28/05)	6/28/2005	iPod and iPod Photo merge--all iPods now have color screens, 20GB and 60GB (Apple Press Release 6/28/05)
	7/29/2005	HP announces that it will stop selling HP iPods http://news.cnet.com/HP-to-stop-selling-Apples-iPod/2100-1047_3-5810643.html
	8/26/2005	Rio Exits the MP3 Player Business http://www.pcmag.com/article2/0,2817,1853090,00.asp
iTunes 5 (Apple Press Release 9/7/05)	9/7/2005	Nano 2GB and 4GB (1st Gen.) (Apple Press Release 9/7/05)
iTunes 6, with music videos and TV shows, is introduced (Apple Press Release 10/12/05)	10/12/2005	5th Gen. iPod announced; color screen, video, 30 GB and 60 GB (Apple Press Release 10/12/05)
	2/2/2006	Dell discountinues hard-drive based MP3 players http://www.pcmag.com/article2/0,2817,1920238,00.asp
	2/7/2006	Nano 1GB (Apple Press Release 2/7/06)
	6/6/2006	iPod U2 Special Edition 30GB (Apple Press Release 6/6/06)
	8/23/2006	Dell pulls remaining flash player and exits MP3 market http://www.pcmag.com/article2/0,2817,2007639,00.asp
iTunes 7, with some movies (Apple Press Release 9/12/06)	9/12/2006	Nano 2nd Gen. 2GB, 4GB and 8GB iPod 30GB and 80GB (5th Gen. color, video) (Apple Press Release 9/12/06)
	10/31/2006	Shuffle, 1GB for sale (2nd Gen.) (Apple Press Release 10/31/06)
	11/3/2006	Nano 8GB (PRODUCT) RED (2nd Gen.) (Apple Press Release 11/3/06)
Microsoft Zune Marketplace begins MP3 sales (Microsoft Press Release 11/13/06)	11/14/2006	Microsoft Zune 30GB for sale (Microsoft Press Release 11/13/06)
Apple Offers DRM Free EMI songs (Apple Press Release 4/2/07)	4/2/2007	
iTunes Plus launched-DRM Free EMI songs (Apple Press Release 5/30/07)	5/30/2007	

Exhibit 4. Timeline of Portable Digital Player and Online Music Events

Online Music	Date	Player
	6/29/2007	iPhone on sale, 4 GB and 8 GB (Apple Press Release 6/28/07)
Walmart sells DRM free MP3 from EMI and Universal http://blog.wired.com/music/2007/08/wal-mart-announ.html	8/21/2007	
iTunes 7.4 and Wi-Fi Music Store for iPhone and iPod Touch (Apple Press Release 9/5/07)	9/5/2007	Nano 3rd Gen. 4GB and 8GB now with video iPod 80GB and iPod 160GB (5th Gen., video) iPod Touch 1st Gen. 8GB and 16GB (Apple Press Releases 9/5/07)
Amazon.com launches DRM free MP3 sales (Amazon.com Press Release 9/25/07)	9/25/2007	
	11/13/2007	New Zune models: 4GB, 8GB, 80GB (Microsoft Press Release 11/12/07)
iTunes movie rentals (Apple Press Release 1/15/08)	1/15/2008	
	2/5/2008	iPhone 16GB iTouch 32GB (Apple Press Release 2/5/08)
	2/19/2008	Shuffle 2nd Gen. 2GB introduced (Apple Press Release 2/19/08)
	7/11/2008	iPhone 3G launched, 8GB and 16GB (Apple Press Release 7/10/08)
iTunes 8 (Apple Press Release 9/9/08)	9/9/2008	4th Gen. Nano, 8GB and 16GB, color/video 2nd Gen. Touch, 8GB, 16GB, 32GB (Apple Press Release 9/9/08)
	9/16/2008	Zune 16GB and 120GB (Microsoft Press Release 9/8/08)
	Sep-09	iPod 120GB, Click Wheel http://support.apple.com/kb/HT1353
HD TV shows offered on iTunes (Apple Press Release 10/16/08)	10/16/2008	
iTunes Plus, Apple's DRM-free format with higher-quality 256 kbps AAC available for all major studios (Apple Press Release 1/6/09)	1/6/2009	

REDACTED

Exhibit 6

REDACTED

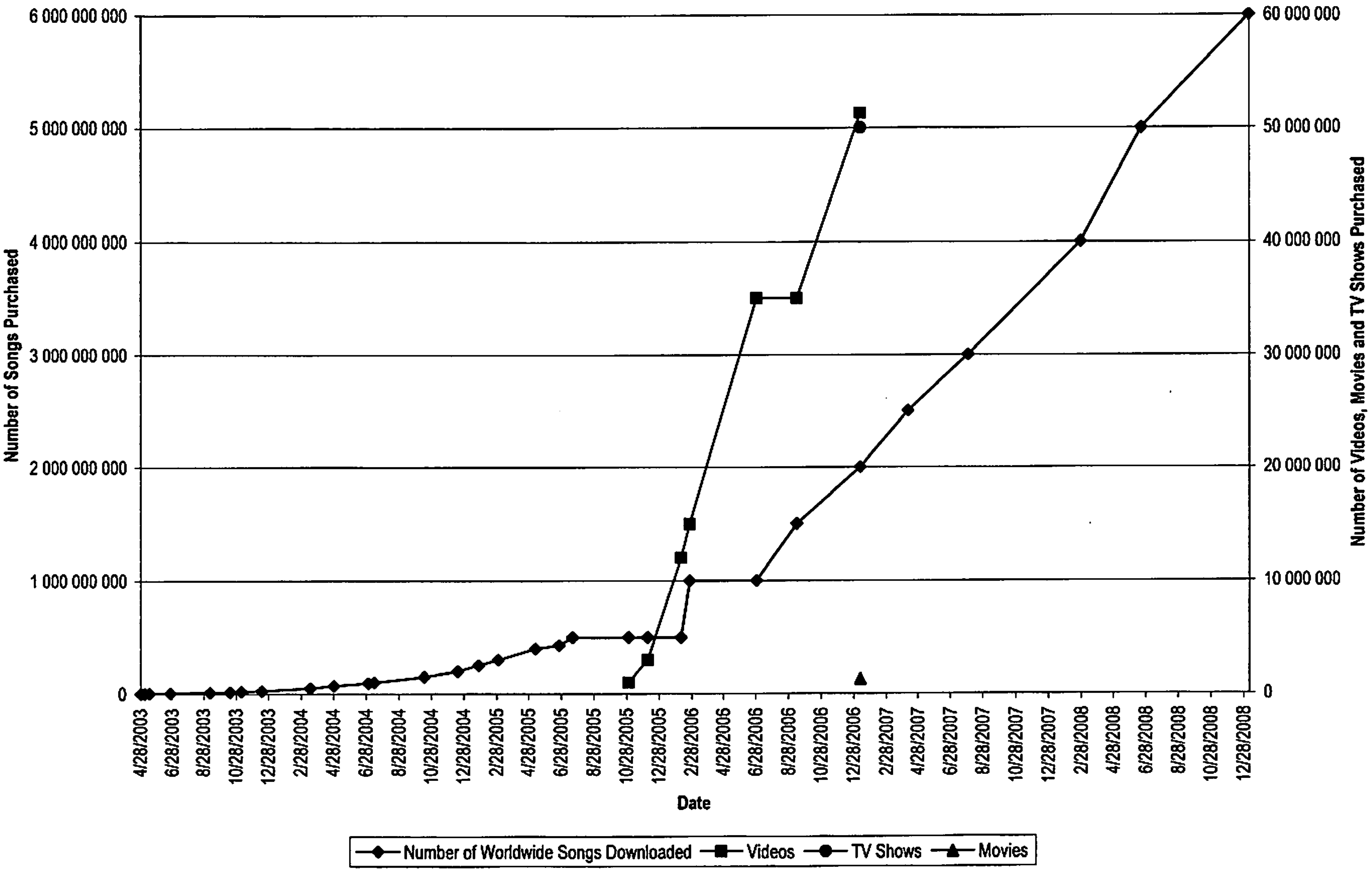
REDACTED

REDACTED

REDACTED

REDACTED

Exhibit 13. Cumulative Worldwide iTMS Song, Video, Movie and TV Show Downloads, 2003-2008


6 000 000 000
5 000 000 000
4 000 000 000
3 000 000 000
2 000 000 000
1 000 000 000
0
Number of Songs Purchased
60 000 000
50 000 000
40 000 000
30 000 000
20 000 000
10 000 000
0
Number of Videos, Movies and TV Shows Purchased
4/28/2003
6/28/2003
8/28/2003
10/28/2003
12/28/2003
2/28/2004
4/28/2004
6/28/2004
8/28/2004
10/28/2004
12/28/2004
2/28/2005
4/28/2005
6/28/2005
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8/28/2006
10/28/2006
12/28/2006
2/28/2007
4/28/2007
6/28/2007
8/28/2007
10/28/2007
12/28/2007
2/28/2008
4/28/2008
6/28/2008
8/28/2008
10/28/2008
12/28/2008
Date
Number of Worldwide Songs Downloaded
Videos
TV Shows
Movies

Sources Apple Press Releases and http //bits blogs nytimes com/2009/01/06/live-blog-the-apple-keynote-speech-at-macworld/?apage=2

Exhibit 14. Apple Inc.'s Worldwide Quarterly Net Sales, Q1 2002-Q1 2009 [a]
(Millions of Dollars Unless Otherwise Noted)

Product	2002 Q1	2002 Q2	2002 Q3	2002 Q4 [d]	2003 Q1	2003 Q2	2003 Q3	2003 Q4 [d]
Net Sales								
iPod	-	-	22	-	81	31	111	122
iPhone and related products and services [b]	-	-	-	-	-	-	-	-
Other music related products and services [c]	-	-	-	-	-	-	-	-
Subtotal	-	-	22	-	81	31	111	122
All Other Products	1,375	1,495	1,407	1,443	1,391	1,444	1,434	1,593
Total Net Sales	1,375	1,495	1,429	1,443	1,472	1,475	1,545	1,715
iPod and iPhone Sales as Percent of Net Sales	-	-	1.5%	-	5.5%	2.1%	7.2%	7.1%
iPod, iPhone and Music Products as Percent of Net Sales	-	-	1.5%	-	5.5%	2.1%	7.2%	7.1%
Americas Net Sales	703	736	817	875	738	684	831	928
Americas as a percent of Net Sales	51.1%	49.2%	57.2%	60.6%	50.1%	46.4%	53.8%	54.1%
Units (Thousands)								
iPods	-	57	54	-	219	83	304	336
iPhone	-	-	-	-	-	-	-	-
Net Sales per iPod Unit Sold [e]	-	-	407	-	370	338	365	363

Product	2004 Q1	2004 Q2	2004 Q3	2004 Q4 [d]	2005 Q1	2005 Q2	2005 Q3	2005 Q4 [d]
Net Sales								
iPod	256	264	249	537	1,211	1,014	1,103	1,212
iPhone and related products and services [b]	-	-	-	-	-	-	-	-
Other music related products and services [c]	47	60	73	98	177	216	241	265
Subtotal	303	324	322	635	1,388	1,230	1,344	1,477
All Other Products	1,703	1,585	1,692	1,715	2,102	2,013	2,176	2,201
Total Net Sales	2,006	1,909	2,014	2,350	3,490	3,243	3,520	3,678
iPod and iPhone Sales as Percent of Net Sales	12.8%	13.8%	12.4%	22.9%	34.7%	31.3%	31.3%	33.0%
iPod, iPhone and Music Products as Percent of Net Sales	15.1%	17.0%	16.0%	27.0%	39.8%	37.9%	38.2%	40.2%
Americas Net Sales	924	881	1,018	1,196	1,637	1,443	1,739	1,771
Americas as a percent of Net Sales	46.1%	46.1%	50.5%	50.9%	46.9%	44.5%	49.4%	48.2%
Units (Thousands)								
iPods	733	807	860	2,016	4,580	5,311	6,115	6,491
iPhone	-	-	-	-	-	-	-	-
Net Sales per iPod Unit Sold [e]	349	327	290	266	264	191	180	187

Product	2006 Q1	2006 Q2	2006 Q3	2006 Q4 [d]	2007 Q1	2007 Q2	2007 Q3	2007 Q4 [d]
Net Sales								
iPod	2,906	1,714	1,497	1,559	3,427	1,663	1,570	1,619
iPhone and related products and services [b]	-	-	-	-	-	-	5	118
Other music related products and services [c]	491	485	457	452	634	653	608	601
Subtotal	3,397	2,199	1,954	2,011	4,061	2,342	2,183	2,338
All Other Products	2,352	2,160	2,416	2,826	3,054	2,922	3,227	3,879
Total Net Sales	5,749	4,359	4,370	4,837	7,115	5,264	5,410	6,217
iPod and iPhone Sales as Percent of Net Sales	50.5%	39.3%	34.3%	32.2%	48.2%	32.1%	29.1%	27.9%
iPod, iPhone and Music Products as Percent of Net Sales	59.1%	50.4%	44.7%	41.6%	57.1%	44.5%	40.4%	37.6%
Americas Net Sales	2,700	2,122	2,213	2,380	3,493	2,447	2,680	2,951
Americas as a percent of Net Sales	47.0%	48.7%	50.6%	49.2%	49.2%	46.9%	49.5%	47.5%
Units (Thousands)								
iPods	14,043	8,526	8,111	8,729	21,066	10,549	9,815	10,200
iPhone	-	-	-	-	-	-	270	1,119
Net Sales per iPod Unit Sold [e]	207	201	185	179	163	160	160	159

Product	2008 Q1	2008 Q2	2008 Q3	2008 Q4 [d]	2009 Q1
Net Sales					
iPod	3,997	1,818	1,678	1,660	3,371
iPhone and related products and services [b]	241	378	419	806	1,247
Other music related products and services [c]	808	881	819	832	1,011
Subtotal	5,046	3,077	2,916	3,298	5,629
All Other Products	4,562	4,435	4,548	4,597	4,538
Total Net Sales	9,608	7,512	7,464	7,895	10,167
iPod and iPhone Sales as Percent of Net Sales	44.1%	29.2%	28.1%	31.2%	45.4%
iPod, iPhone and Music Products as Percent of Net Sales	52.5%	41.0%	39.1%	41.8%	55.4%
Americas Net Sales	4,298	3,268	3,435	3,572	4,501
Americas as a percent of Net Sales	44.7%	43.5%	46.0%	45.2%	44.3%
Units (Thousands)					
iPods	22,121	10,644	11,011	11,052	22,727
iPhone	2,315	1,703	717	6,892	4,363
Net Sales per iPod Unit Sold [e]	181	171	152	150	148

[a] Quarters based on fiscal years ending: September 28, 2002, September 27, 2003, September 25, 2004, September 24, 2005, September 30, 2006, September 29, 2007, and September 27, 2008. Q1 2009 is the period ending December 27, 2008.
[b] Derived from handset sales, carrier agreements, and Apple-branded and third-party iPhone accessories
[c] Consists of iTunes Store sales, iPod services, and Apple-branded and third-party iPod accessories
[d] Q4 calculated from the difference between annual financials and Q1 through Q3.
[e] Calculated as iPod net sales divided by iPod unit sales for Q3 of 2002, 2003-2004, Q1, Q3-Q4 of 2005, and Q4 of 2006-2008. Otherwise as stated in financials

Sources: Apple Inc.'s 10Qs for fiscal quarters 2003: Q1-Q3, 2004: Q1-Q2, 2005: Q1-Q3, 2006: Q2, 2007: Q1, Q3, 2008: Q2-Q3, 2009: Q1 and 10Ks for fiscal years 2004, 2005, 2006, and 2008

Exhibit 15. Apple Inc.'s Worldwide Quarterly Gross Margins, Q1 2002-Q1 2009 [a]
(Millions of Dollars Unless Otherwise Noted)

	2002				2003				2004				2005			
Margin	Q1	Q2	Q3	Q4 [b][c]	Q1	Q2	Q3	Q4 [b][c]	Q1	Q2	Q3	Q4 [b][c]	Q1	Q2	Q3	Q4 [b]
Net sales	1,375	1,495	1,429	1,443	1,472	1,475	1,545	1,715	2,006	1,909	2,014	2,350	3,490	3,243	3,520	3,678
Cost of sales	953	1,086	1,038	1,062	1,066	1,057	1,117	1,259	1,470	1,379	1,455	1,718	2,494	2,275	2,475	2,643
Gross margin	422	409	391	381	406	418	428	456	536	530	559	634	996	968	1,044	1,035
Gross margin percentage	30.7%	27.4%	27.4%	26.4%	27.6%	28.3%	27.7%	26.6%	26.7%	27.3%	27.8%	27.0%	28.5%	29.8%	29.7%	28.1%

	2006				2007				2008				2009
Margin	Q1	Q2	Q3	Q4 [b]	Q1	Q2	Q3	Q4 [b][c]	Q1	Q2	Q3	Q4 [b][c]	Q1
Net sales	5,749	4,359	4,370	4,837	7,115	5,264	5,410	6,217	9,608	7,512	7,464	7,895	10,167
Cost of sales	4,185	3,062	3,045	3,425	4,895	3,415	3,415	4,127	6,276	5,038	4,864	5,156	6,635
Gross margin	1,564	1,297	1,325	1,412	2,220	1,849	1,995	2,090	3,332	2,474	2,600	2,739	3,532
Gross margin percentage	27.2%	29.8%	30.3%	29.2%	31.2%	35.1%	36.9%	33.6%	34.7%	32.9%	34.8%	34.7%	34.7%

[a] Quarters based on fiscal years ending: September 28, 2002, September 27, 2003, September 25, 2004, September 24, 2005, September 30, 2006, September 29, 2007, and September 27, 2008. Q1 2009 is the period ending December 27, 2008.
[b] Q4 Gross margin percentage calculated from gross margin divided by net sales.
[c] Q4 Cost of sales calculated from annual cost of sales minus Q1 through Q3.

Sources: Apple Inc.'s 10Qs for fiscal quarters 2003: Q1-Q3, 2004: Q1-Q2, 2005: Q1-Q3, 2006: Q2, 2007: Q1, Q3, 2008: Q2-Q3, 2009: Q1 and 10Ks for fiscal years 2002, 2004 - 2006, and 2008.

Appendix A

Curriculum Vitae
of
Gary L. French, Ph.D.

GARY L. FRENCH

CURRENT POSITIONS

Senior Vice President, Nathan Associates Inc.
Principal, Telecommunications Research Inc.

EDUCATION

Ph.D., Economics, University of Houston, 1973
M.A., Economics, University of Houston, 1971
B.B.A., University of Houston, 1966

SPECIALIZED EXPERIENCE, RESEARCH, OR INTEREST

Antitrust, business and asset valuation, damage analysis, class certification issues, franchising, telecommunications (especially wireless), wholesale and retail trade, and product distribution

PAST POSITIONS

1988 1995	Vice President, Nathan Associates Inc.
1987 1988	Assistant Vice President, Nathan Associates Inc.
1981 1987	Principal Associate, Nathan Associates Inc.
1979 1981	Senior Associate, Nathan Associates Inc.
1977 1979	Independent Consultant
1976 1979	Assistant Professor of Economics, Old Dominion University
1972 1976	Assistant Professor of Economics and Finance, Texas A&I University
1971 1972	Instructor of Finance, University of Houston

EXPERIENCE SUMMARY

Dr. French has been a full time economic consultant for over 25 years. Most of his consulting has been related to litigation or regulation, and he has often provided expert testimony before federal and state courts and regulatory authorities. His experience extends to most kinds of litigation and to energy, telecommunications, and trade regulation. In the course of his consulting work, he has become familiar with a variety of businesses, industries, and markets. Earlier in his career, he served on the faculties of three different universities, and taught courses in economics, finance, and statistics.

PROFESSIONAL CONSULTING EXPERTISE

Antitrust economics, including market definition, measurement of market shares, and assessments of market power and competitive impacts of horizontal and vertical restraints, predatory conduct, and monopolizing behavior

Economic, financial, marketing, and statistical analyses of issues in litigation and regulation

Analysis of damage causation and estimation of the magnitude of damages in litigation
Valuation and financial analyses of businesses and business assets
Analyses of business franchising and franchisor franchisee relationships
Survey and market research
Public policy analyses and applied economics

Industry Familiarity

- Airlines
- Franchise business and systems
- Insurance
- Pharmaceuticals
- Soft drink bottling
- Waste collection and disposal
- Wholesale and retail trade
- Wireless telephone, cable television, and other telecommunications

EXPERT TESTIMONY

DR. FRENCH HAS PRESENTED ORAL EXPERT TESTIMONY BEFORE THE FOLLOWING ENTITIES:

U.S. District Courts

- District of Columbia
- Eastern District of Virginia, Norfolk and Alexandria Divisions
- District of Maryland
- District of Connecticut
- Eastern District of Pennsylvania
- Central District of California, Western Division
- Middle District of Florida, Jacksonville Division
- Middle District of Tennessee, Nashville Division
- Eastern District of Missouri, Eastern Division
- Eastern District of Michigan
- District of New Jersey
- District of Illinois
- Eastern District of New York
- Southern District of New York
- Eastern District of Texas, Texarkana and Tyler Divisions
- Western District of Texas, San Antonio Division
- Northern District of Texas, Amarillo Division
- Southern District of Texas, Houston Division
- Southern District of Illinois
- Middle District of Alabama, Northern Division
- District of Minnesota, Third Division
- Western District of Louisiana, Shreveport Division
- Eastern District of Washington
- Southern District of Ohio, Western Division

U.S. Bankruptcy Court

- Middle District of Florida
- Northern District of Mississippi

U.S. Tax Court

State Courts

- Arlington County, VA
- Fairfax County, VA
- City of Virginia Beach, VA
- Baltimore City, MD
- Charles County, MD
- Montgomery County, MD
- Tarrant County, TX
- Harris County, TX
- Fulton County, GA
- County of Philadelphia, PA
- County of San Diego, CA
- Cook County, IL
- Madison County, IL
- County of Maricopa, AZ
- San Joaquin County, CA

Regulatory Authorities

- Federal Maritime Commission
- Office of Hearings and Appeals, U.S. Department of Energy
- International Trade Commission
- Massachusetts Department of Public Utilities

DR. FRENCH HAS PRESENTED ONLY WRITTEN EXPERT TESTIMONY BEFORE THE FOLLOWING ENTITIES:

U.S. District Courts

- District of South Carolina, Greenville and Columbia Divisions
- Northern District of Ohio, Eastern Division
- Southern District of Florida
- Southern District of Mississippi, Jackson Division
- Northern District of Georgia
- District of South Carolina, Columbia Division
- Northern District of California

State Courts

- City of Alexandria, VA
- City and County of San Francisco, CA
- Ocean City, NJ
- Fayette County, TN
- Cole County, MO
- Atlantic City, NJ

Regulatory Authorities

- Federal Communications Commission
- Department of Transportation

SEMINARS AND PRESENTATIONS

Seminar on damage analysis and valuation, presented to Hogan & Hartson, Washington, D.C., Dec. 1985 and to Shaw, Pittman, Potts & Trowbridge, Washington, D.C., April 1986.

"Economic Damage and Valuation: Use of Forensic Economics," presented at the Twelfth Annual Convention of the Virginia Association of Defense Attorneys, October 4, 1986.

"Experts and Ethics" Panel, New York State Bar Association, 130th Annual Meeting, January 25, 2007.

PUBLICATIONS

"Economic and Financial Expertise and Economic Damages," Sections II IX, co author along with Gary L. French and John L. Solow, in *Modern Scientific Evidence: The Law and Science of Expert Testimony*, 2008 2009 Edition, Volume 5, Chapter 43, *Forensics, Engineering & Economics,* David Faigman, et. al., editors, Thomson/West, 2008.

Article concerning the role of economics in litigation, "Commentary & Insight." *Legal Times* VI, No. 30 (Dec. 26, 1983/Jan. 2, 1984).

"The Redistributive Impact of the Atlanta Mass Transit System: A Comment" (with W.K. Talley). *Southern Economic Journal* 47, No. 3 (Jan. 1981).

"Linder's Trade Thesis: A Further Examination" (with J.W. Sailors and U.A Qureshi). *Southern Economic Journal* 46, No. 3 (Jan. 1980).

"A Regional Test of the Ricardian Theory of Comparative Advantage" (with U.A. Qureshi). *Atlantic Economic Journal* 6, No. 2 (July 1978).

"Factor Proportions and Regional Trade in the United States." In *Proceedings of the Southwestern Society of Economists* II, (Mar. 1977).

"Economic Development and World Trade" (with R.N. Bean). *Economic Affairs* XX, No. 8 (Aug. 1975).

"A Regional Test of the Heckscher Ohlin Theory of International Trade." *Nebraska Journal of Economics and Business* XIV, No. 3 (Summer 1975).

AWARDS AND HONORS

National Science Foundation Graduate Traineeship, 1967 1970

Omicron Delta Epsilon

Beta Gamma Sigma

Top Ten Student, University of Houston, 1969 1970

PROFESSIONAL MEMBERSHIPS

American Economic Association

Industrial Organization Society

National Association for Business Economics

Advisory Board, American Antitrust Institute

Associate Member, American Bar Association

1/30/2009

Matters in Which Gary L. French Has Provided Deposition and/or Trial Testimony in the Last Four Years						
Case	**Court/Agency**	**Number**	**Client**	**Testimony**	**Protective Order**	**Description**
Best Pallets, Inc., et al. v. Brambles Industries, Inc., et al.	U.S. District Court for the Western District of Arkansas	Case No. 08-2012	Plaintiffs	Deposition Testimony	YES	Analysis of the impact and damages to shipping pallet recyclers from alleged increases in their costs by a rival
Jason Tesauro, et al. v. The Quigley Corporation	Court of Common Pleas, County of Philadelphia, Pennsylvania	Case No. 001011	Plaintiffs	Trial Testimony	NO	Analysis and estimates of damages from an alleged breach of an implied warranty and unjust enrichment
Faye Vassilatos, et al. v. Del Monte Fresh Produce Company, et al.; and Kathleen Conroy, et al. v. Fresh Del Monte Produce, Inc.	Circuit Court for the 15th Judicial Circuit, Palm Beach County, Florida; and Superior Court for the State of California, County of Alameda	Case No. 50 2004 CA 04066, XXXX MB; and J.C.C.P. 4446	Plaintiffs	Deposition Testimony	YES	Analysis of impact and damage methodologies for a class of indirect purchasers of extra sweet "gold" pineapples in a monopolization case
Casey William Hyland, et al. v. Home Services of America, Inc., et al.	U.S. District Court, Western District of Kentucky at Louisville	Civil Action No. 3:05-cv-612-R	Plaintiffs	Deposition Testimony	YES	Analysis of the class-wide impact and damages to purchasers of residential real estate brokerage services stemming from an alleged price fixing conspiracy
James Casaburi, et al. Robert Werksman, et al. v. Palmone, Inc, et al.	Superior Court of the State of California, San Francisco County	Case No. 04-435844	Plaintiffs	Deposition Testimony	NO	Analysis of class-wide impact and damages to purchasers of a smart wireless phones missing claimed features

Matters in Which Gary L. French Has Provided Deposition and/or Trial Testimony in the Last Four Years						
Case	**Court/Agency**	**Number**	**Client**	**Testimony**	**Protective Order**	**Description**
Golden Bridge Technology, Inc. v. Nokia, Inc., et al.	U.S. District Court, Eastern District of Texas, Tyler Division	Civil Action No. 6:06-cv-163 (LED)	Plaintiff	Deposition Testimony	YES	Analysis and Calculation of damages stemming from an alleged group boycott of wireless technology.
In re Wellbutrin SR Antitrust Litigation	U.S. District Court, Eastern Division of Pennsylvania	Civil Action No. 2:04-cv-05525	Plaintiffs	Deposition Testimony	YES	Analysis of the class-wide impact and damages to purchasers of a brandname drug stemming from the delay of the introduction of generic substitutes.
Pioneer Valley Caskets Co., Inc. et al. v. Service Corporation International, et al.	U.S. District Court, Southern District of Texas, Houston Division	No. 4:05-CV-03399	Plaintiffs	Deposition Testimony	YES	Analysis of class certification, antitrust, and damage issues in a restricted distribution case
National Railroad Passenger Corporation v. ExpressTrak, L.L.C.	U.S. District Court, District of Columbia	Civil Action No. 02-1773 (RBW)	Plaintiff and Counter-Defendant	Deposition Testimony	YES	Analysis of the economic conditions for early termination of a contract
Center for Elders Independence and Louis Ambrosio, et al. v. Biovail Corporation, et al.	Superior Court of the State of California, San Joaquin County	Case No. CV 023320	Plaintiffs	Deposition Testimony	YES	Analysis of the economic injury to the class and methodologies for measuring class-wide damages

Matters in Which Gary L. French Has Provided Deposition and/or Trial Testimony in the Last Four Years						
Case	**Court/Agency**	**Number**	**Client**	**Testimony**	**Protective Order**	**Description**
In re K-Dur Antitrust Litigation	U.S. District Court, District of New Jersey	Civil Action No. 01-1652 (JAG), MDL Docket No. 1419	Plaintiffs	Deposition Testimony	YES	Analysis of the economic injury to the class and methodologies for measuring class-wide damages, and subsequently analysis of liability issues and the quantification of class-wide damages.
In Re Wireless Telephone Services Antitrust Litigation	U.S. District Court, Southern District of New York	02 Civ. 2637 (DLC)	Plaintiffs	Deposition Testimony	YES	Market definition, assessment of market power, competitive effects of tying, and class-wide damage calculations.
New Boston Fund, Inc., and JBG/New Boston Arlington Office, L.L.C v. The JBG Companies and JBG/JER Arlington Gateway, L.L.C.	Circuit Court for Arlington County, Virginia	Chancery No. 02-741	Defendants	Deposition Testimony	YES	Analysis of the fact and magnitude of damages stemming from the alleged breach of a joint venture agreement to develop a commercial office building.
American Classic Agency, Inc. and American Classic Agency, Corp. and Fidelity and Guaranty Life Insurance Company	JAMS Arbitration	Reference No. 1410003231	Respondent	Deposition and Arbitration Hearing Testimony	YES	Analysis of the fact and magnitude of damages from an alleged breach of contract.

February 2009

Appendix B

Materials Considered

Appendix B

Materials Considered

Court Documents

United States District Court for the Northern District of California, *Stacie Somers v. Apple Inc.*, Case No. 07-6507 (JW), dated December 31, 2007, Class Action Complaint for Violations of Sherman Antitrust Act, Cartwright Act, California Unfair Competition Law, Consumer Legal Remedies Act and Monopolization of Business Practices.

United States District Court for the Northern District of California, *Apple iPod iTunes Antitrust Litigation*, Case No. C 05-00037 (JW), July 15, 2008, Declaration of Roger G. Noll.

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